

## Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

### Listing of Claims:

1-39. (Canceled)

40. (Currently amended) An isolated nucleic acid comprising a recombinant vector comprising a nucleotide sequence selected from the group consisting of nucleic acids 854 to 2953 of SEQ ID NO: 17, and a sequence complementary to nucleic acids 854 to 2953 ~~the full length of~~ SEQ ID NO: 17.

41. (Original) An isolated nucleic acid as in claim 40 wherein said vector is an expression vector and said nucleotide sequence is operably joined to a regulatory region.

42. (Previously Presented) An isolated nucleic acid as in claim 41 wherein said expression vector is a mammalian expression vector.

43. (Previously Presented) An isolated nucleic acid as in claim 42 wherein said mammalian expression vector expresses said nucleotide sequence in cells in culture, said cells being selected from the group consisting of fibroblast, liver, kidney, spleen, bone marrow, and neurological cells.

44. (Previously Presented) An isolated nucleic acid as in claim 41 wherein said vector is selected from the group consisting of vaccinia virus, adenovirus, retrovirus, neurotropic viruses, and Herpes simplex virus.

45. (Currently Amended) An isolated nucleic acid comprising a recombinant expression vector comprising a nucleotide sequence selected from the group consisting of nucleic acids 854 to 2953 of SEQ ID NO: 17, and a sequence complementary to nucleic acids 854 to 2953 ~~the full length of~~ SEQ ID NO: 17; said nucleotide sequence being operably joined to a regulatory region, wherein said expression vector encodes at least a functional domain of an hcAMP-GEFII protein having the amino acid sequence of amino acids 150 to 849 of SEQ ID NO: 18, wherein said functional domain of the hcAMP-GEFII protein exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.

46. (Original) An isolated nucleic acid as in claim 41 wherein said vector further comprises sequences encoding an exogenous protein operably joined to said nucleotide sequence and whereby said vector encodes a fusion protein.

47. (Original) An isolated nucleic acid as in claim 46 wherein said exogenous protein is selected from the group consisting of lacZ, trpE, maltose-binding protein, poly-His tags, and glutathione-S-transferase.

48. (Canceled)

49. (Canceled)

50. (Previously Presented) A host cell in culture, or a descendent cell thereof in culture, said host cell or descendent cell comprising a recombinant vector of any one of claims 40, 41 or 44-47, wherein said host cell is transformed *in vitro* with said vector.

51. (Previously Presented) A host cell in culture as in claim 50 wherein said host cell is selected from the group consisting of bacterial cells and yeast cells.

52. (Previously Presented) A host cell in culture as in claim 50 wherein said host cell is a mammalian host cell.

53. (Previously Presented) A host cell in culture as in claim 50 wherein said cell is selected from the group consisting of fibroblast, liver, kidney, spleen, bone marrow and neurological cells.

54. (Previously Presented) A host cell in culture as in claim 50 wherein said cell is an invertebrate cell.

55-61. (Canceled)

62. (Previously Presented) A method for producing at least a functional domain of an hcAMP-GEFII protein (SEQ ID NO: 18), said method comprising culturing a host cell of any one of claims 51-54 under suitable conditions to produce said protein by expressing said nucleic acid, wherein said functional domain exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.

63-130. (Canceled)

131. (Previously Presented) A host cell in culture, or a descendant cell thereof in culture, said host cell or descendent cell comprising an expression vector of claim 42 or 43, wherein said host cell is transformed *in vitro* with said expression vector.

132. (Previously Presented) A host cell in culture as in claim 131 wherein said host cell is a mammalian host cell.

133. (Previously Presented) A host cell in culture as in claim 131 wherein said cell is selected from the group consisting of fibroblast, liver, kidney, spleen, bone marrow and neurological cells.

134. (Previously Presented) A method for producing at least a functional domain of an hcAMP-GEFII protein (SEQ ID NO: 18), said method comprising culturing a host cell of claim 50 under suitable conditions to produce said protein by expressing said nucleic acid, wherein said functional domain exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.